REMARKS

This Request for Continued Examination ("RCE") is submitted in response to the final rejection of claims 1-26 in the July 9, 2007 Office Action.

Claim 25 has been withdrawn.

Claims 1, 6, 18, 19 and 26 have been amended.

In claim 1, support for the limitation "wherein the amount of Cu in the alloy is below the maximum solubility" is found, for example, at page 5, lines 25 - 35 of the specification of U.S. Patent Application Serial No. 09/104,123 ("123 specification"), to which the instant application claims priority. Support for the limitation "wherein the amount of Mg in the alloy is below the maximum solubility" is found, for example, at page 5, lines 25-35 of the '123 specification as filed. Support for the limitation "wherein the fracture toughness of the alloy is maintained or improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component" is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Fracture Toughness" is defined as the R-curve and discrete measures of fracture toughness obtained therefrom such as K_{R25} and is tested per ASTM E 561-94 "Standard Practice for R-Curve Determination" as supplemented by ASTM B 646-94. Support for the limitation "wherein the strength of the alloy is improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component" is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Strength" is defined as tensile yield strength and is tested per ASTM E 8 - 96 "Standard Test Methods for Tension Testing of Metallic Materials".

In claim 6, support for the limitation "wherein the Mg content of the alloy is from about 0.6 to about 1.5 weight percentage" is found at page 2, line 26 of the '123 specification as filed.

In claim 18, support for the limitation "wherein said dispersoid is selected from at least one of the group consisting of chromium, vanadium, titanium, zirconium, manganese, nickel, iron, hafnium, scandium and rare earth elements" is found, for example, at page 5, lines 17-23 of the '123 application as filed. "Dispersoid" is synonymous with "grain refiner", as those terms are commonly used and are used in the '123 specification and instant application.

In claim 19, support for the limitation "wherein the at least one dispersoid in the alloy is present in a total amount up to about 1.0 weight percent of the alloy" is found, for example, at page 5, lines 17-24 of the '123 application as filed. "Dispersoid" is synonymous with "dispersoid-forming element" as those terms are used in the '123 specification and instant application.

In claim 26, support for the limitation "wherein the fracture toughness of the alloy is maintained or improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component" is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Fracture Toughness" is defined as the R-curve and discrete measures of fracture toughness obtained therefrom such as K_{R25} and is tested per ASTM E 561-94 "Standard Practice for R-Curve Determination" as supplemented by ASTM B 646-94. Support for the limitation "wherein the strength of the alloy is improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component" is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Strength" is defined as tensile yield strength and is tested per ASTM E 8 - 96 "Standard Test Methods for Tension Testing of Metallic Materials".

Claims 2 - 5 and 7-17 and 20-24 remain pending without further amendment.

Applicants appreciate the Examiner's determination that claims 1-26 as amended in the April 23, 2007 Supplemental Amendment are patentable over U.S. Patent No. 5,455,003, issued to Pickens et. al. and over U.S. Patent No. 7,229,509, issued to Cho. Specifically, Applicants appreciate the Examiner's statements in the July 9, 2007 Office action that "Cho (US 7,229,509) is considered pertinent to applicant's disclosure, however, Pickens '003 discussed below (or Rioja cited above) is considered closer prior art to the instantly claimed invention than Cho '509" and that "the declarations filed under 37 CFR 1.132 filed February 12, 2007; April 24, 2007; and May 1, 2007; together with applicant's arguments and the instant amendment are sufficient to overcome the rejection of claims 1 - 26 based upon Pickens '003." In response, Applicants have amended pending claims 1, 6, 18, 19, and 26 so as to place the instant application in better condition for allowance. No new matter is added.

In addition, the claims submitted for examination in this RCE are fully supported by the specification as filed of U.S. Application No. 09/104,123 ("'123 application"), filed on June 24, 1998, to which the current application claims priority as a continuation-in-part application. By virtue of full specification support in the '123 application, claims 1-26 as pending are entitled to an effective filing date of June 24, 1998.

Claim Objections / Claim Interpretation

In the 7/9/07 Office Action, Claims 1-26 stand objected to as currently amended claims 1 and 26's limitation "the strength/toughness relationship is positive for lithium" is considered unclear. Applicants appreciate the Examiner's insight that the limitation "the strength/toughness relationship is positive for lithium addition to a given alloy" means that both strength and toughness are improved upon addition of low amounts of lithium (e.g. those disclosed in the invention as claimed and in the specification as filed) to a given alloy. This previously-noted characteristic of the claimed and disclosed invention is surprising in light of the well accepted inverse relationship between yield strength and toughness. As previously-submitted data demonstrate and as a general rule for Al-Cu-Mg-Li alloys under review, as strength is increased, the toughness decreases. As noted above, Claims 1 and 26 have been amended so as to place the claims in better condition for allowance by deleting the above limitation and inserting the following limitations:

- "wherein the fracture toughness of the alloy is maintained or improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component": Support is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Fracture Toughness" is defined as the R-curve and discrete measures of fracture toughness obtained therefrom such as K_{R25} and is tested per ASTM E 561-94 "Standard Practice for R-Curve Determination" as supplemented by ASTM B 646-94.
- "wherein the strength of the alloy is improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component": Support is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Strength" is defined as tensile yield strength and is tested per ASTM E 8 - 96 "Standard Test Methods for Tension Testing of Metallic Materials".

Claim Rejections -- 35 U.S.C. §§102(a) and 103(a).

In the 7/9/07 Office Action, Claims 1-6, 8,9,18-21, 25, and 26 stand rejected under 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 6,562,154 ("Rioja '154"), filed on June 12, 2000. Claims 7, 10-17, and 22-24 stand rejected under 35 U.S.C. §103(a) as being obvious over Rioja '154.

In response, Applicants respectfully note that Claims 1-24 and 26 as pending are fully supported by the specification of U.S. Application No. 09/104,123 ("'123 application"), as filed on June 24, 1998, to which the current application claims priority as a continuation-in-part application. By virtue of full specification support in the '123 application, claims 1-26 as pending are entitled to an effective filing date of June 24, 1998.

More specifically, support for the following limitations of Claims 1-26 is present in the specification of the '123 application as follows:

Claim 1

- Support for the limitation "from about 3 to about 5 weight percent Cu" is found, for example, at page 2, line 27 of the '123 specification as filed.
- Support for the limitation "from greater than 0.6 to about 2 weight percent Mg" is found, for example, at page 2, line 28 of the '123 specification as filed.
- Support for the limitation "from about 0.01 to about 0.8 weight percent Li"is found, for example, at page 2, lines 28 - 29 of the specification as filed.
- Support for the limitation "up to about 2.0 weight percent Zn" is found, for example, at page 5, lines 23-25 of the '123 specification as filed.
- Support for the limitation "up to about 2.0 weight percent Ag" is found, for example, at page 5, lines 23-24 of the '123 specification as filed.
- Support for the limitation "up to about 1 weight percent of a dispersoid" s found, for example, at page 5, lines 18-23 of the '123 specification as filed.

"Dispersoid" is synonymous with "grain refiner", as those terms are commonly used and are used in the '123 specification and instant application.

- Support for the limitation "the balance aluminum and incidental elements and impurities" is found, for example, at page 5, lines 14-16 of the '123 specification as filed.
- Support for the limitation "wherein the amount of Cu in the alloy is below the maximum solubility" is found, for example, at page 5, lines 25 - 35 of the '123 specification as filed.
- Support for the limitation "wherein the amount of Mg in the alloy is below the maximum solubility" is found, for example, at page 5, lines 25-35 of the '123 specification as filed.
- Support for the limitation "wherein the fracture toughness of the alloy is maintained or improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component" is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Fracture Toughness" is defined as the R-curve and discrete measures of fracture toughness obtained therefrom such as K_{R25} and is tested per ASTM E 561-94 "Standard Practice for R-Curve Determination" as supplemented by ASTM B 646-94.
- Support for the limitation "wherein the strength of the alloy is improved upon addition of lithium when compared to the same alloy having the same composition but having no lithium component" is found, for example, at page 13, line 16 - page 14, line 2 of the '123 specification as filed. "Strength" is defined as tensile yield strength and is tested per ASTM E 8 - 96 "Standard Test Methods for Tension Testing of Metallic Materials".

Claim 2

- Support for the limitation "wherein the Li content of the alloy is from about 0.2 to about 0.8 weight percent" is found, for example, as described relative to claim 1 above.

Claim 3

- Support for the limitation "wherein the Li content of the alloy is from about 0.2 to about 0.7 weight percent" is found, for example, as described relative to claim 1 above.

Claim 4

- Support for the limitation "wherein the Cu content of the alloy is from about 3.5 to about 4.5 weight percent" is found, for example, as described relative to claim 1 above.

Claim 5

- Support for the limitation "wherein the Cu content of the alloy is from about 3.6 to about 4.4 weight percent" is found, for example, as described relative to claim 1 above.

Claim 6

- Support for the limitation "wherein the Mg content of the alloy is from about 0.6 to about 1.5 weight percent" is found, for example, as described relative to claim 1 above.

Claim 7

- Support for the limitation "wherein the Mg content of the alloy is from about 0.7 to about 1.0 weight percent" is found, for example, as described relative to claim 1 above.

Claim 8

- Support for the limitation "wherein the Cu and Mg contents of the alloy conform to the formula: $Cu \leq 2-0.676 (Mg - 6)$" is found, for example, at the equation of page 8, line 31 of the '123 specification as filed.

Claim 9

- Support for the limitation "wherein the Cu and Mg contents of the alloy conform to the formula: $Cu \leq 1.5-0.556 (Mg - 6)$" is found, for example, at the equation of page 9, line 3 of the '123 specification as filed.

Claim 10

- Support for the limitation "wherein the silver content of the alloy is from about 0.01 to about 2 weight percent" is found, for example, as described relative to claim 1 above.

Claim 11

- Support for the limitation "wherein the Ag content of the alloy is from about 0.05 to about 5 weight percent" is found, for example, as described relative to claim 1 above.

Claim 12

- Support for the limitation "wherein the Ag content of the alloy is from about 0.1 to about 0.4 weight percent" is found, for example, as described relative to claim 1 above.

Claim 13

- Support for the limitation "wherein the zinc content of the alloy is from about 0.05 to about 0.2 weight percent" is found, for example, as described relative to claim 1 above.

Claim 14

- Support for the limitation "wherein the Zn content of the alloy is from about 0.2 to about 1 weight percent" is found, for example, as described relative to claim 1 above.

Claim 15

- Support for the limitation "wherein the Zn content of the alloy is about 0.5 weight percent" is found, for example, as described relative to claim 1 above.

Claim 16

- Support for the limitation "further comprising from about 0.1 to about 2 weight percent Si" is found, for example, at page 5, lines 23-25 of the '123 specification as filed.

Claim 17

- Support for the limitation "wherein said Si content is from about 0.1 to about 2 weight percent Si" is found, for example, at page 5, lines 23-25 of the '123 specification as filed.

Claim 18

- Support for the limitation “wherein said dispersoid is selected from at least one of the group consisting of chromium, vanadium, titanium, zirconium, manganese, nickel, iron, hafnium, scandium and rare earth elements” is found, for example, at page 5, lines 17-23 of the ‘123 application as filed. “Dispersoid” is synonymous with “grain refiner”, as those terms are commonly used and are used in the ‘123 specification and instant application.

Claim 19

- Support for the limitation “wherein the at least one dispersoid in the alloy is present in a total amount up to about 1.0 weight percent of the alloy” is found, for example, at page 5, lines 17-24 of the ‘123 application as filed. “Dispersoid” is synonymous with “dispersoid-forming element” as those terms are used in the ‘123 specification and instant application.

Claim 20

- Support for the limitation “the alloy further comprising from about 0.2 to about 0.7 weight percent Mn” is found, for example, at page 5, lines 17-23 of the ’123 specification as filed.

Claim 21

- Support for the limitation “the aluminum alloy is in the form of a sheet” is found, for example, at page 4, lines 16-25 of the ‘123 specification as filed.

Claim 22

- Support for the limitation “wherein the aluminum alloy is in the form of a plate” is found, for example, at page 10, lines 28-30 of the specification as filed.

Claim 23

- Support for the limitation “wherein the aluminum alloy is in the form of an extrusion” is found, for example, at page 4, lines 16-25 of the ‘123 specification as filed.

Claim 24

- Support for the limitation “wherein the aluminum alloy is in the form of a forging” is found, for example, at page 9, lines 9-10 of the ‘121 specification as filed

Claim 26

- Support for the limitation "wherein said damage tolerant aircraft part is a fuselage panel or frame component, wing skin, rib, spar landing gear component, wheel, horizontal stabilizer, vertical stabilizer, pressure bulkhead, door frame, window frame, or wheel component" is found, for example, at page 5, lines 2-3 of the '123 specification as filed.
- Support for the remaining limitations of Claim 26 are found, for example, as described relative to Claim 1 above.

Consequently, since, as detailed above, **claims 1-24 and 26 as pending are entitled to an effective filing date of June 24, 1998** -- the current application priority claim as a continuation-in-part application of the '123 application -- **U.S. Patent No. 6,562,154 ("Rioja '154") with a filing date of June 12, 2000** is NOT a prior art reference to the pending claims. Consequently, Rioja '154 has been removed as a prior art reference as to Claims 1 -26, whether under 35 U.S.C. §102(a) or 35 U.S.C. §103(a).

Withdrawal of the §§102(a) and 103(a) rejections over Rioja '154 and made of record in the 7/9/07 Office Action is respectfully requested.

Double Patenting

In the 7/9/07 Office Action, claims 1-26 stand rejected on the ground of obviousness-type double patenting as being unpatentable over claims 1-103 of Rioja '154. In response, Applicant submits herewith a terminal disclaimer so as to disclaim any portion of the patent grant beyond the term of Rioja '154. Withdrawal of this ground of rejection is respectfully requested.

Applicants have made a sincere effort to address all the concerns expressed by the Examiner. It is respectfully submitted that the showing of priority to the '123 application as filed and the amendments to independent claims 1, 6, 18, 19, and 26 address the patentability of the pending claims. In view of this, the Examiner is respectfully requested to reconsider the application at an early date with a view towards issuing a favorable action thereon. If upon review of the application, the Examiner is unable to issue an immediate Notice of Allowance, the Examiner is respectfully requested to telephone the undersigned attorney with a view towards resolving any outstanding issues.

Early and favorable action is earnestly solicited.

If any additional fee is due, the amount of such fee may be charged to Deposit Account No. 01-1000, Ref. No. 97-2301.

Respectfully submitted,

By: /Barry J. Schindler/
Barry J. Schindler
Registration No. 32,938
Attorney for Applicants
GREENBERG TRAURIG, LLP
200 Park Avenue
New York, NY 10166
Tel.: (212) 801-9200